Case Classification	**Criteria**
Confirmed outbreak case **(n=19)**	1. Laboratory confirmation[a] of infection with a specimen collection date on or after [specified date] with clinical signs and symptoms compatible with mumps infection[b] with symptom onset on or after [specified date] and linked to a known outbreak related exposure [specified]. **(n=9)** OR 2. Clinically compatible signs and symptoms with mumps infection[b] with onset on or after [specified date] in a person with an epidemiologic link to a laboratory-confirmed outbreak case. **(n=7)** OR **3.** Individual with parotitis[b] with a known direct link to a case in category 2 above, and/or other outbreak related exposure [specified] **(n=3)**
Probable Outbreak Case **(n=0)**	a) Clinical signs and symptoms compatible with mumps infection[b] with symptom onset on or after [specified date] AND b) A link to a known outbreak related exposure site (absence of an epidemiologic link to a laboratory-confirmed case) AND c) Absence of laboratory testing or laboratory confirmation (e.g. laboratory results are pending and / or it is outside the window of laboratory testing sensitivity) **(n=0)**

Suspect outbreak case **(n=8)**	1. Anyone with fever and respiratory symptoms (but no parotid or salivary gland swelling since [specified date], in the absence of confirmatory laboratory testing and with an epidemiologic link to a known outbreak-related exposure **(n=0)** OR 2. Anyone with parotitis[b] without an outbreak related exposure [specified] **(n=8)**

[a]Laboratory Confirmation included:

- Isolation of mumps virus from an appropriate clinical specimen (e.g. buccal swab or saliva collected from the oral cavity, NP swab, urine specimen, CSF, etc.)

  AND/OR
- Detection of mumps virus ribonucleic acid (RNA) by a validated nucleic acid amplification test (NAAT) from an appropriate clinical specimen (e.g. buccal swab or urine specimen; NB: buccal swab preferred)

  AND/OR
- Demonstration of seroconversion or a significant (e.g. fourfold or greater) rise in mumps IgG antibody level between acute and convalescent sera

  AND/OR
- Positive serologic test for mumps Immunoglobulin M (IgM) antibody using a recommended assay in a unvaccinated person who is linked to a known outbreak related exposure

[b]Clinically compatible signs and symptoms included:

- Acute onset of unilateral or bilateral parotitis lasting longer than 2 days, without other apparent cause

  AND/OR

- Other symptoms or complications of mumps including but not limited to myalgia, anorexia, malaise, headache, fever and other symptoms as deemed appropriate, without other apparent cause

Table S1: Case definitions used to classify cases investigated in mumps outbreak, southwestern Ontario, 2015

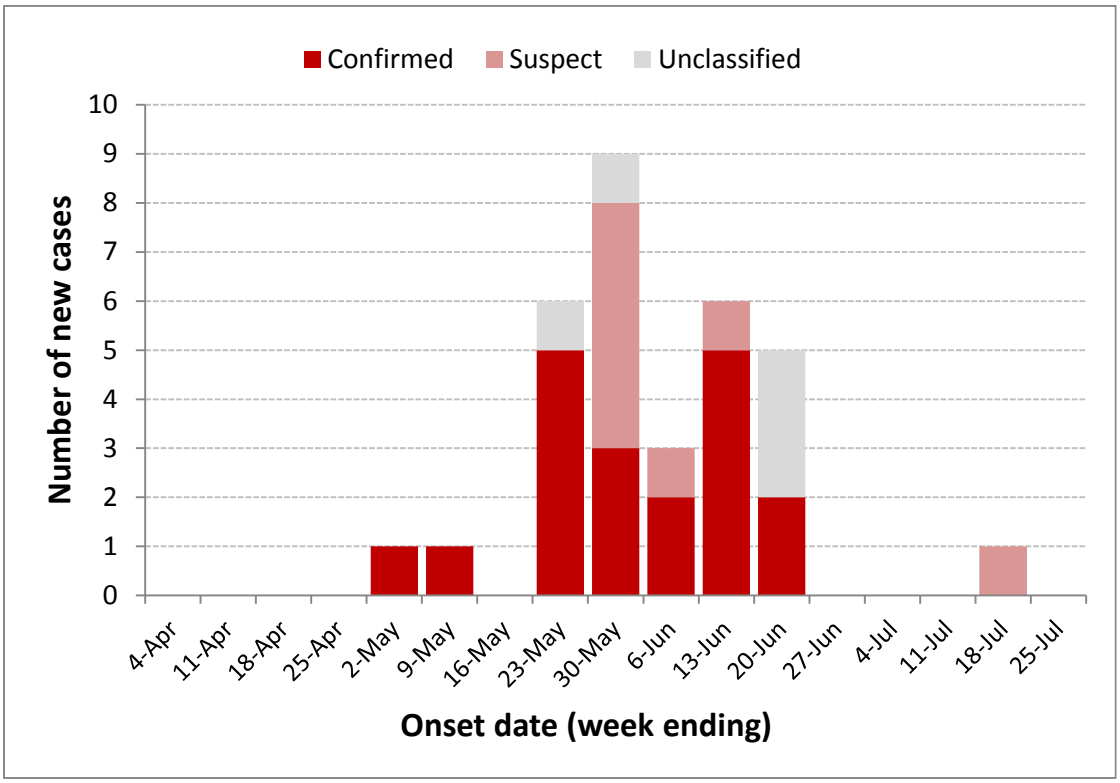

Fig S1: Epidemiological curve of confirmed (n=19) and suspect cases (n=8) associated with mumps outbreak, southwestern Ontario, spring 2016. Note that no cases were classified as probable cases in the outbreak, and an additional five individuals (shown as unclassified) did not meet any category of the outbreak definition.

Reason for unclassified status	Number of People
Mumps diagnostic tests negative. Parotitis and epi-link to lab-confirmed outbreak case, but other apparent cause (respiratory pathogen) identified, therefore not clinically compatible with being a case according to outbreak definition	2
Mumps diagnostic tests negative. No parotitis AND no identified epi-link to outbreak-associated person or place	3

Table S2: **Clinical presentation, test results and identified exposure history for unclassified cases (n=5) reported during the mumps outbreak, southwestern Ontario, spring 2015**

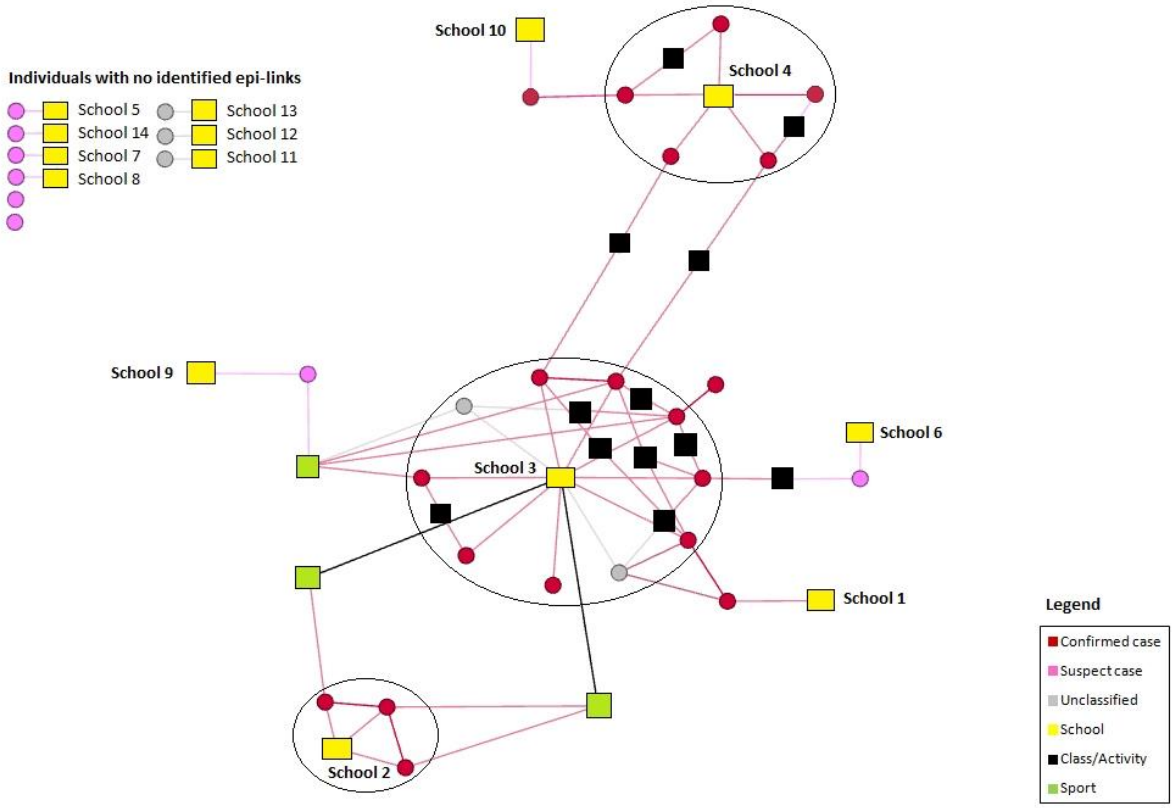

Fig S2: Social network diagram of associations between confirmed and suspect cases, unclassified individuals, and exposures: mumps outbreak, southwestern Ontario, spring 2015. All confirmed cases were associated with schools labelled School 2, School 3 and School 4.

Test (specimen)	Interval between onset of clinical signs and specimen collection: Range (median), days	Number of individuals tested	Number of specimens tested	Number of individuals with positive results (%)	Number of positive specimens (%)
RT-PCR (buccal swabs)	0-8 (2)	29	29	7 (24.1%)	7 (24.1%)
Viral culture (RT-PCR-positive buccal swabs)	0-8 (2)	7	7	2 (28.6%)	2 (28.6%)
RT-PCR (throat swabs)	0-8 (2.5)	28	28	6 (21.4%)	6 (21.4%)
Viral culture (RT-PCR-positive throat swabs)	0-8 (2.5)	5	5	2 (40.0%)	2 (40.0%)
RT-PCR (urine)	0-24 (3)	30	34	1 (3.3%)	1 (2.9%)
Viral culture (RT-PCR positive urine)	7 [n=1]	1	1	0 (0.0%)	0 (0.0%)
Serology – EIA, IgM detection(blood)	0-21 (3)[a]	27	33	3 (11.5%)	4 (12.1%)

Serology – EIA, IgG seroconversion (paired blood)[b]	n/a (interval between first and second blood specimen = 20d; n=1)	1	1	0 (0.0%)	0 (0.0%)

[a]The three serology specimens that tested positive for igM were collected at 8, 11 and 21 d respectively

[b] Twenty-two of 27 serology specimens collected for IgG tested positive (reactive) for IgG to mumps antigen. The 27 specimens were collected at 0 to 12d after onset of symptoms (median 2 d, and n=5 collected at >5d, the latest PHO-recommended testing time for acute serum) All of the five negative specimens were collected within the 5-day testing window. Immunization status was unknown for one of the five individuals that tested negative. Three of the other four individuals had been fully immunized against mumps (2 doses), and one was unimmunized. Convalescent serology testing was performed on only one of the five negative (non-reactive) individuals, who had received two doses of the vaccine; this case was again IgG non-reactive.

Table S3: Results of laboratory diagnostic tests performed on specimens collected from all patients (all case classifications and unclassified individuals), mumps outbreak investigation, southwestern Ontario, spring 2015